

REMARKS

Claims 1-6 are active in the application.

5 Claim 5 has been amended to recite that the light-blocking plate does is "not intercepting a core of said waveguide". This added feature is supported by Fig. 3, which clearly shows that the plate 15 does not intercept the waveguide core 3a.

10 Claims 1-6 were rejected under 35 USC 103(a) as being unpatentable over Yasuyuki (JP Pub. No. 10054917) in view of US patent 6,170,996 to Miura. These rejections are traversed. The references do not teach or suggest, either alone or in combination, that *two separate* light blocking resins can be used to cover coupling parts and thereby provide optical isolation between two optical devices. Also, the rejections are traversed on the grounds that the combination proposed in the Office Action will not produce or make obvious the present invention because the plate 24 of Yasuyuki will obstruct the application of light-blocking resin. Finally, the rejections of claims 5-6 are
15 traversed on the grounds that the FILTER 13 of Yasuyuki et al. does not anticipate or make obvious the light-blocking plate of the present invention as amended.

The present invention provides an optical module with low crosstalk and low interference between input and output. This beneficial performance is provided as a result of light-blocking resin covering a "coupling parts". The light-blocking resin prevents
20 unwanted laser light from striking a light-receiver.

Moreover, the proposed combination of Miura et al. and Yasuyuki et al. will not produce the present invention as claimed. Yasuyuki et al. includes a plate 24 directly over the laser diode LD and photodiode PD. The plate 24 will interfere with the application of light-blocking resin, and so it is necessary to seek guidance from Miura et al. as to how
25 light-blocking resin can be combined with the plate. Miura et al. in Fig. 11 provides a structure for combining a plate with light-blocking resin. However, the teachings of Fig. 11, when combined with Yasuyuki et al. will produce a structure very different from the present invention. Specifically, in Fig. 11 of Miura et al. the transparent silicone resin 18 is disposed *under* the cover 40 (analogous to plate 24), and the light-blocking resin 24 is
30 disposed *over* the cover 40. So, it is hereby submitted that a combination of Miura et al. and Yasuyuki et al. will require an analogous structure: that the transparent silicone resin

be disposed under the plate 24, and the light-blocking resin 24 of Miura et al be disposed over the plate 24 of Yasuyuki et al. This structure will not produce the present invention as claimed in claims 1-4, because the light-blocking resin 24 will not be "covering" a coupling part. Also, the light-blocking-resin 24 will not be able to prevent crosstalk between the LD and PD and associated coupling parts, because crosstalk will occur under the plate 24 (by light propagating in the transparent resin). The light-blocking resin 24, since it is disposed over the plate 24, will be unable to block light traveling between the LD and PD coupling parts. Hence, the combination proposed by the Examiner will not produce or make obvious the present invention as claimed. Therefore, the rejections of the present claims 1-4 must be withdrawn.

It is also noted that Miura et al. teach only a single optical device such as a LD or PD. For example, Miura et al. state in col. 4, lines 63-66 that the optical element 10 is "...a laser diode or a photodiode...". Miura et al. provide no teaching or suggestion that both a laser diode and photodiode can be present in the package, and that two light-blocking resin can be used to optically isolate the coupling parts associated with the two devices. This is significant because the present invention and claims 1-4 are specifically directed to a device having both light-receiving and light-emitting devices wherein the coupling parts associated with these devices are optically isolated by the light-blocking resin. Since Miura et al. do not teach or suggest multiple optical devices, Miura et al. completely lacks any suggestion that light-blocking resin can be used to isolate two coupling parts in the same package. Yasuyuki et al. does not make up for this deficiency of Miura et al. This is because Yasuyuki et al. also does not teach or suggest the use of a light-blocking resin (as correctly noted in the Office Action) or any other structure that can prevent optical crosstalk between coupling parts or optical devices. Hence, no possible combination of Miura et al. and Yasuyuki et al. can produce the present invention as claimed in claims 1-4, which requires a first and a second light-blocking resin (two resins), with each resin covering a coupling part and thereby providing optical isolation between light-emitting and light-receiving optical devices. Accordingly, the rejections of claims 1-4 must be withdrawn for this additional reason.

Claim 5 was apparently rejected under 35 USC 102 in view of Yasuyuki et al. although this was not stated. The Examiner referred to plate 13, which can only refer to

the FILTER 13 of Yasuyuki et al., because Miura et al. do not employ the indicia '13'. The rejection of claim 5 based on Yasuyuki et al.'s filter is erroneous. It is again noted that the FILTER 13 of Yasuyuki et al. is distinct from the light-blocking plate of the present invention for several reasons: (1) Claim 5 recites a "light-blocking plate". The
5 FILTER 13 of Yasuyuki et al. necessarily transmits light, and so does not anticipate the light-blocking plate of claim 5. The filter of Yasuyuki et al. is not light-blocking because it is made to transmit some wavelengths of light; (2) The filter 13 of Yasuyuki et al. is disposed in a slot (see Fig. 5) so that it intercepts, and provides a filtering function for a waveguide port 14. The filter 13 intercepts the waveguide. The filter 13 does not meet the
10 limitation added to claim 5 that the plate is not intercepting the waveguide core. For these reasons, the teaching of Yasuyuki et al. are completely different from the present invention as claimed in amended claim 5, and the rejection of claim 5 must therefore be withdrawn.

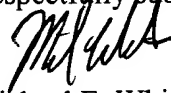
In view of the foregoing, it is respectfully requested that the application be
15 reconsidered, that claims 1-6 be allowed, and that the application be passed to issue.

With respect to the IDS submission referenced by the Examiner, attached hereto is a copy of the PTO 1149 previously submitted along with copies of English language abstracts for each of the references cited therein. As noted previously, the relevance of the references is that they were cited in a corresponding foreign patent application.

20 Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

A provisional petition is hereby made for any extension of time necessary for the continued pendency during the life of this application. Please charge any fees for such provisional petition and any deficiencies in fees and credit any overpayment of fees for the petition or for entry of this amendment to Attorney's Deposit Account No. 50-2041
5 (Whitham, Curtis & Christofferson P.C.).

Respectfully submitted,



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